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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,494	05/25/2005	Botho Hoffmann	235811	6551

23460 7590 08/08/2007

LEYDIG VOIT & MAYER, LTD
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6731

EXAMINER	
LISTVOYB, GREGORY	

ART UNIT	PAPER NUMBER
1711	

MAIL DATE	DELIVERY MODE
08/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,494	HOFFMANN ET AL.	
	Examiner	Art Unit	
	Gregory Listvoyb	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

Claims 1-5, 7, 9, 11-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US patent 6291633), herein Nakamura (cited in the previous Office Action), in combination with Frihart et al (US 5786086), herein Frihart (necessitated by Amendment) and evidences by Uang et al (US 2003/0126788, necessitated by Amendment).

Nakamura teaches semi-crystalline, melt processable copolyamides comprising terephthalic, isophthalic (Column 2, line 55), C6-C12 aminocarboxylic acids or lactams ((column 3, line 25), C6-C12 dicarboxylic acids (column 3, line 10), C4-C12 diamines (Column 3, line 5) with melting point from 290C to 316C (Abstract). Variations in melting point values can be achieved by changing ratios between aromatic and aliphatic fragments of the resin. Melting point of the polyamide varies by changing ratio between aromatic (i.e. phthalic) and aliphatic (i.e. adipic) acids in the composition.

Regarding claims 14-18, Nakamura teaches a methods of producing molded articles from the above polyamide by extrusion (Example 11) and injection molding (Example 18).

Nakamura does not teach dimerized fatty acid in his polyamide

Frihart discloses semi crystalline, melt processable copolyamides, producible by condensation of terephthalic acid, adipic acid, C36 dimerized fatty acid with trimer content of 1-35% wt of tribasic acid (see Column 5, line 30).

As evidenced by Uang, mechanical properties of dimerised fatty acid-based polyamide is greatly affected be the nature of the acid (i.e. ratio between monomeric, dimeric, trimeric and polymeric fractions (see line 0044)). In addition Uang discloses that the above polyamides have a lower degree of crystallinity compare to Nylon 6,6. This phenomena occurs due to molecular weight difference between adipic and dimerised fatty acids (C6 vs C18) and molecular weight distribution of commercial fatty acids.

Large fragments of Tribasic fatty acid (C54) decreases melting point of a polyamide, creates irregularities in crystallic structure and eventially decreases such mechanical propertie as toughness (Young Modulus)

It would have been obvious to a person of ordinary skills in the art at the time the invention was made to use distilled fatty acid mixture with trimer content below than 3%wt in polyamide synthesis in order to obtain more regular structure of the polymer, increasing its toughness.

Addition of dimerized fatty acid decreases its melting point, which leads to better processability. Compare to adipic acid as a melting point regulator, dimerized fatty acid has an advantage, since molar amount of fatty acid needed to achieve the same result is much lower due to the difference in their molecular weight.

Therefore, It would have been obvious to a person of ordinary skills in the art at the time the invention was made to use dimerized fatty acid in Nakamura's polymer to enhance processability of the polyamide.

Claims 6, 8, 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in combination with Frihart and Coquard 1 (US patent 4680379) or Coquard 2 (US patent 4826951) or Drawert ((JP publication 05-12584) (cited in the previous Office Action).

Nakamura teaches semi-crystalline, melt processable copolyamides comprising terephthalic, isophthalic (Column 2, line 55), C6-C12 aminocarboxylic acids or lactams ((column 3, line 25), C6-C12 dicarboxylic acids (column 3, line 10), C4-C12 diamines (Column 3, line 5) with melting point from 290C to 316C (Abstract). Variations in melting point values can be achieved by changing ratios between aromatic and aliphatic fragments of the resin. Melting point of the polyamide varies by changing ratio between aromatic (i.e. phthalic) and aliphatic (i.e. adipic) acids in the composition. (see discussion above)

Frihart discloses semi crystalline, melt processable copolyamides, producible by condensation of terephthalic acid, adipic acid, C36 dimerized fatty acid with trimer content of 1-35% wt of tribasic acid (see Column 5, line 30). (see discussion above)

Nakamura and Frihart don't teach terephthalic and isophthalic acids presented together in the mixture.

Coquard 1 or Coquard 2 or Drawert disclose a mixture of isophthalic and terephthalic acids in their polyamides.

Drawert discloses semi crystalline, melt processable copolyamides, producible by condensation of terephthalic acid or its mixture with isophthalic acid or aliphatic C 4-11 acid (Abstract, lines 0019, 0020, 0021), adipic acid, dimerized fatty acid (dimerized C12-22 carbon fatty acid, line 0023) and aliphatic diamines (i.e. hexamethylenediamine or diaminononane (Abstract, line 0030).

Coquard 1 discloses semi crystalline, melt processable copolyamides, producible by condensation of terephthalic acid or its mixture with isophthalic acid, adipic acid, dimerized fatty acid (for instance dimerized C18 fatty acid, Column 5, line 65) and aliphatic diamines (i.e. hexamethylenediamine) (Abstract, Claims 9 and 20).

Coquard 2 discloses semi crystalline, melt processable copolyamides, producible by condensation of terephthalic acid or its mixture with isophthalic acid or aliphatic C12 acid (Column 5, line 50), adipic acid, dimerized fatty acid (for instance, dimerized C16-20 carbon fatty acid, Column 6, line 10) and aliphatic diamines (i.e. hexamethylenediamine) (Abstract).

Mixing terephthalic acid with isophthalic acid is a one of the methods to affect crystallinity (and subsequently, melting point) of a polyamide. Excessive amount of terephthalic acid leads to high crystalline structure, which should be processed at very high temperature.

Therefore, It would have been obvious to a person of ordinary skills in the art at the time the invention was made to use mixture of terephthalic acid with isophthalic acid in Nakamura's polymer to enhance processability of the polyamide.

Response to Amendment

Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

The new reference (Frihart, see above) is added in order to meet the new limitation of less than 3%wt of tribasic acid.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb
Examiner
Art Unit 1711

GL
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James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700